

A holistic framework for Empowering SME's capacity to increase their energy efficiency

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List of Acronyms

Acronym	Meaning
DHW	Domestic Hot Water
E&T	Education & Training
ECCP	European Cluster Collaboration Platform
EE	Energy Efficiency
EPC	Energy Performance Certificate
HVAC	Heating, Ventilation and Air Conditioning
LPG	Liquefied Petroleum Gas
M&T	Monitoring & Targeting
M&V	Measurement & Verification
MSMEs	Micro, - small and medium enterprises
PV	Photovoltaic
RES	Renewable Energy Source
SME	Small and Medium Enterprise
UNECE	United Nations Economic Commission for Europe
Yr.	year
WP	Work Package

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1. Introduction

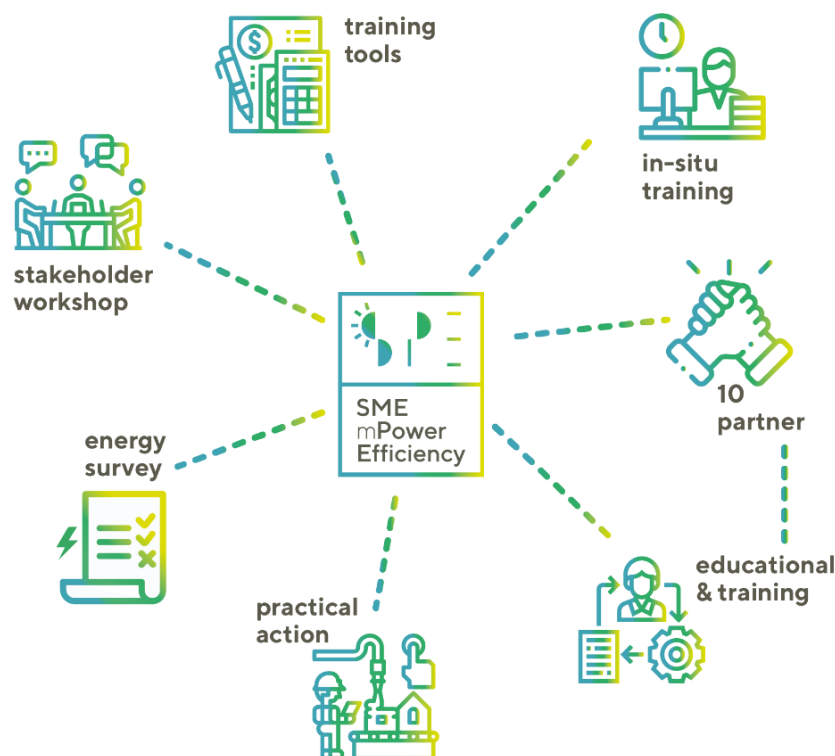
The Report has been developed in the framework of the “SMEmPower Efficiency” project, funded by the Horizon 2020 under the Grant Agreement No. 847132/2019.

The deliverable and related tasks concern the Organizational Dimension of the SMEmPower concept, therefore the practical action in pilot sites comes forward.

The carefully selected pilot sites through the 8 countries come to help the trainees during the E&T program to put in practice the actual knowledge gained, and using the specific tools developed within the project to perform energy surveys and propose specific energy saving measures for each pilot site.

The SMEmPower concept highlights the importance of encouraging a large and vast community of SMEs to undergo energy audits and implement energy efficiency measures. But facts need action; therefore the SMEmPower team selected 51 SMEs for the first edition of the E&T courses in the 8 project partner countries: Cyprus, Germany, Greece, Italy, Romania, Slovenia, Spain and United Kingdom.

The aim is to reach at least 20 pilots in each country until the end of the three editions of the E&T courses.



1.1. Purpose of the deliverable

The purpose of the deliverable can be highlighted by the four main levels:

- **The context:** Taking into consideration the current situation of the COVID-19 pandemic, it is important to see how the European SMEs were affected and still are affected by the pandemic.
- **Criteria:** The SME mPower team developed a list of criteria for selecting the SMEs as pilot sites. This is an important step as the objective is to reach as many sectors as possible in each country.
- **Pilot sites:** The main actors of the task. Diversity, variety of SME types.
- **Motivation and engagement.**

1.2. Context

1.2.1. Behind the scenes

As described in the introduction part, the pilot sites are the key actors of the project and its main results. In the deliverable *D2.1 Framework analysis report* ([Available on the website](#)), the scene was already defined by identifying the current situation in the SMEs, based on the well-shaped survey's results from the 8 countries. The survey targeted topics such as energy efficiency, energy audits & energy management, barriers which hinder the implementation of all this in entities.

The results show clearly that there were many similarities among the SMEs, as most of the SMEs have not appointed an energy manager and more than 50% of the respondents have never carried out an energy audit. The main conclusion was that **SMEs do not put energy efficiency in high priority.**

What is the role of the pilot sites in empowering SMEs to undergo energy audits and implement energy efficiency measures?

The pilot sites will benefit from technical support in the later stages of the project provided by the working teams and consortium partners. Also, a report will be developed after the on-site visit which will detail the proposed energy saving measures and other relevant remarks regarding the energy flow. Due to COVID-19 the on-site visits have been reduced to the bare minimum and in some cases they were not even possible, for health and safety reason.

In close correlation with the Education & Training (E&T) program of the project, the working groups will consist of 4-5 persons participating in the courses and each working group will work on an SME pilot. The working groups will use existing energy audits where is the case and by using the Monitoring & Targeting (M&T) and the Measurement & Verification (M&V) tools in order to effectively prove the potential saving and to develop an energy efficiency action plan.

Also, short, in-site training is targeted to the top management and decision-makers of the SME case studies to increase the motivation and support transfer knowledge within the activities, focusing on the results from the energy surveys and proposed measures. Also, funding opportunities and

supporting schemes should be presented and promoted. The abovementioned activities will be adapted to the situation of each country due to COVID-19.

The objective: to update existing energy audits where it is applicable, and where not, to understand better the main energy flows and the need of SMEs to empower them in implementation of energy efficiency measures and to prove the importance of carrying out energy audits or updating existing ones.

1.2.2. COVID– 19 impact on the SMEs

Besides the barriers which were identified in the framework of previous work, the SMEs were recently also hit by the serious COVID-19 pandemic, which forced many of the entities across the world and specifically Europe, to minimize or even shut down their businesses. Businesses experienced drop in sales of producers of intermediate goods and services, along with the importance of other businesses upon which they are depending. Governments all across Europe tried to support the businesses.

How much was the importance of energy efficiency in SMEs influenced by the pandemic?

Did energy efficiency become more unprioritized during this period?

Is it an opportunity for the SMEs to take action toward energy efficiency?

Analyzing fresh and current data, the objective was to answer, or at least try to answer the above-listed questions, and to find guidelines and best practices for improving the engagement of the pilot sites in the current situation.

Studies described in *Guidelines and best practices for micro-, small and medium enterprises in delivering energy-efficient products and in improving renewable energy equipment* prepared by the United Nations Economic Commission for Europe (UNECE), highlight some key impacts on the micro-, small and medium enterprises (MSMEs), and also key best practices for this kind of entities.

The recent data (Figure 1) shows clearly the negative impact of the pandemic. **More than half** of the respondent SMEs from Small, medium-sized enterprises stated that they were **strongly affected by the pandemic**. In *Figure 1* the results from the Micro-sized companies are not showed.

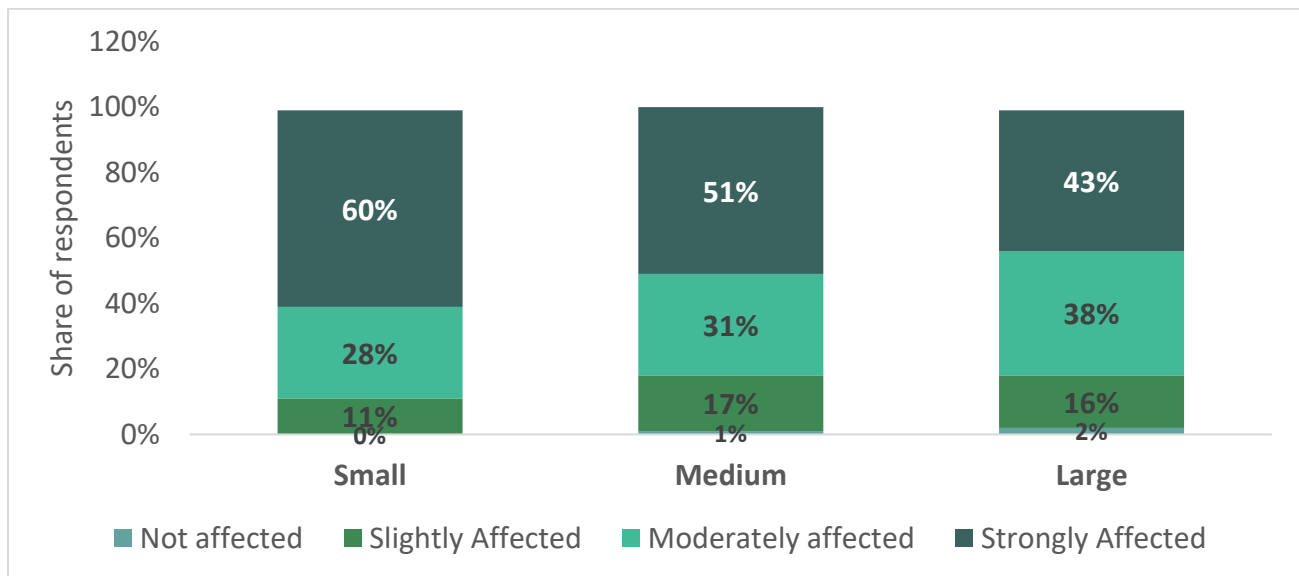


Figure 1. COVID-19 impact on SMEs

Note:

Small enterprise: 5-19 employees

Medium enterprise: 20-99 employees

Large enterprise: 100 and above employees

The impact of the pandemic was felt also in different industries across Europe. The most affected sectors are those from manufacturing as in Europe a 40% loss in manufacturing activity was estimated. Construction and agriculture sectors were also influenced during the lockdowns and restrictions.

The European Cluster Collaboration Platform (ECCP) also reached out a network of SMEs to find out the impact of the pandemic on SMEs and their activities.

The key concerns of the SMEs during the COVID-19 crisis have been various, most of them worrying about the sales/turnover and the fixed costs related to salaries of the staff, rent or other. Figure 2 describes the main concerns.












Concerns of SMEs during the COVID-19 crisis












Figure 2. Concerns of SMEs during the COVID-19 crisis

2. The main energy consuming sectors

In the table below, the main energy consuming sectors are presented:

COUNTRY	The main energy consuming sectors					
	 INDUSTRY SECTOR	 TRANSPORT SECTOR	 COMMERCIAL & PUBLIC SECTOR	 HOUSEHOLDS	 AGRICULTURE & FORESTRY	 OTHER SECTORS
 CYPRUS	229 ktoe	676 ktoe	229 ktoe	336 ktoe	45 ktoe	19 ktoe
 GERMANY	56,272 ktoe	57,242 ktoe	34,451 ktoe	56,552 ktoe	-	85 ktoe
 GREECE	3,096 ktoe	5,815 ktoe	2,192 ktoe	4,413 ktoe	291 ktoe	246 ktoe
 ITALY	24,926 ktoe	34,525 ktoe	18,242 ktoe	32,899 ktoe	3,019 ktoe	-
 ROMANIA	6,390 ktoe	6,149 ktoe	1,841 ktoe	7,679 ktoe	494 ktoe	307 ktoe

COUNTRY	The main energy consuming sectors					
	 INDUSTRY SECTOR	 TRANSPORT SECTOR	 COMMERCIAL & PUBLIC SECTOR	 HOUSEHOLDS	 AGRICULTURE & FORESTRY	 OTHER SECTORS
 SLOVENIA	1,295 ktoe	1,848 ktoe	480 ktoe	1,120 ktoe	72 ktoe	19 ktoe
 SPAIN	18,974 ktoe	31,723 ktoe	10,413 ktoe	15,435 ktoe	2,404 ktoe	694 ktoe
 UK	22, 656 ktoe	57,002 ktoe	20,195 ktoe	41,249 ktoe	1,505 ktoe	-

3. Criteria of the pilot site selection

The pilot sites were selected based on criteria established by the consortium to meet the project's KPIs and to reach a large variety of SMEs. The first and most important criteria is to target small and medium-sized enterprises.

All the next criteria were not mandatory but represented an advantage when choosing a SME as a pilot site in order to have a variety in the entities and to target different SMEs with different needs and possibilities (for example SMEs that have never carried out an energy audit, and SMEs that have already carried out an energy audit, but which needs to be updated). Therefore, the above-listed criteria were taken into account while selecting the pilot sites:

- **Intensive energy consumption** - represents an advantage;

Energy intensity contributes to better potential when it comes to energy efficiency solutions. The variety of solutions is bigger.

- Different NACE codes – at least 5 out of 20 pilot sites. This KPI will be evaluated at the end of the pilot sites selection.
- **Engagement with the preliminary evaluation to enhance energy efficiency on the selected sites** (and to justify the energy saving target proposed within the project) – represents an advantage;
- **Availability to employ and internal/external Energy Manager** – represents an advantage.

The objective is to empower SMEs to employ or train an internal person for becoming Energy Manager within the entity. The practical action within the pilot sites will prove the need and advantages of an Energy Manager.

- **Existing budget allocation for energy efficiency and/or RES implementation** – represents an advantage;
- **Commitment to applying for EU and/or national grants for energy efficiency & RES** – represents an advantage;

4. Pilot sites' description

The description of the pilot sites was carefully built in order to have the basic information of each of the pilot sites. The description will be essential when the trainees will visit these pilot sites for performing the energy survey and to propose energy efficiency measures. The purpose of each partner was to collect as many data as possible to obtain a clear image of the current situation.

In the following section, the description elements will be presented.

The pilot sites are presented anonymously, the only administrative information that was required is the **NACE code** and number of employees, the last one for ensuring that the selected pilot is an SME.

After the short and general description of the SME, the **technological process** is described together with a basic data regarding the production or goods sold, if it is the case. The energy profile of the SME is based on the information regarding the energy use within the entity targeting the **main energy sources** and associated **energy consumption**.

A short review about the building assets was added to the description which is an important aspect when talking about energy consumption. Especially when the SME is not producing and the main consumers are in the **buildings**: heating, ventilation and air conditioning (HVAC) system, lighting system, office suppliers etc. We asked SMEs how the energy is used in the entity by filling two separate tables for identifying the **main energy consumers** and to help identifying potential energy efficiency measures.

At the **Energy Management level**, the two main input information is: when was the **last energy audit** carried out within the SME and which are (if they are any) the **energy efficiency measures** implemented or planned to be implemented. Those two elements reflect clearly the potential of the Energy Management level.

In the following 9 subchapters, the description for each pilot sites from the 8 countries (Cyprus, Germany, Greece, Italy, Romania, Slovenia, Spain and United Kingdom) will be presented. In the first subchapter, an overview of the pilot sites and their diversity is highlighted, together with the identified potential for energy efficiency measures and energy management.

4.1. Pilot sites as a whole

In the first round of the SME engagement, a total number of 51 SMEs were attracted by the SEmPower Efficiency project. The pilot sites represent a great variety of activities which is shown by the different NACE codes and equivalent activities.



51 SMEs engaged



8 countries




Minimum 4,973 employees





Main sectors: Manufacturing (C), Electricity, gas, steam and air conditioning supply (D), Water supply; sewerage; waste management and remediation activities (E), Wholesale and retail trade; repair of motor vehicles and motorcycles (G), Transporting and storage (H), Accommodation and food service activities (I), Professional, scientific and technical activities (M)

4.2. Cyprus

		Number of pilot sites: 7
1	[I] 55101	Accommodation and Food Service Activities, Hotels
2	[C], 24	Manufacturing, Manufacture of basic metals
3	[H], 52233	Transportation and Storage, Operation of airports
4	[E], 37	Water Supply; Sewerage, Waste Management and Remediation Activities, Sewage
5	[I], 55101	Accommodation and Food Service Activities, Hotels
6	[G], 2351	Wholesale and retail trade; repair of motor vehicles and motorcycles, Retail sale of bottled gas and petroleum, coal and fuelwood
7	[C], 11	Manufacturing, Manufacture of beverages








Pilot 1. Accommodation and Food Service Activities, Hotels

	
Number of employees	Total energy consumption
227	9,068 MWh/year


Short description of the SME

Pilot no.1 is a 5-star Hotel accommodation located in Paphos.

Energy profile of the SME

						
2018	Electricity	LPG	Diesel for transport	Heating diesel	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption	4,832 (MWh)	39.6 (tones/yr.)	300 (litres/yr.)	335.8 (tones/yr.)	-	-
Cost (euro)	-	-	-	-	-	-

Buildings

	Total net surface	5000	sqm
	Total surface (buildings + outdoor premises)	-	sqm


Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	4	-	4


Note: There is no thermal insulation on the building's envelope and no Energy Performance Certificate available.


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Short description of the HVAC system: 3 heating oil burners are used for space heating, DHW and laundry. 3 air-cooled water chillers and split units are used for space cooling.

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	No
	Lighting	Yes
	Compressed air	No
	Ventilation	Yes
	Pumps	Yes
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Kitchen, Spa, restaurants and bars	Yes



Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes
	Laundry	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	-
	Entirely LED Technology	90 %

Energy Management

- Energy audit in the last x year? – *Yes, the energy audit was carried out during the last 5 years.*
- *No implementation of EE & RES measures.*

Pilot 2. Manufacturing, Manufacture of basic metals

	
Number of employees	Total energy consumption
232	13.873 MWh/year








Short description of the SME

The design, extrusion, anodization, electrostatic painting, production and commercialisation of aluminium products.


Technological processes

- Primary materials: Aluminum
- Final products: Vast range of products including aluminium systems, accompanying accessories, photovoltaic mounting systems, medical grade aluminium pallets, fences, ladders and more.

Energy profile of the SME

						
2018	Electricity	LPG	Diesel for transport	Heating diesel	Petrol for transport	Energy produced and sold from RES
Consumption	6,400 (MWh)	505 (tones/yr.)	92,000	-	13,100 (liters/yr.)	-
Cost (euro)	-	-	-	-	-	-


Buildings


	Total net surface	24,416	sqm
	Total surface (buildings + outdoor premises)	55,000	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	2	4


Note: No Energy Performance Certificate available. Around 50% of the building's envelope is thermally insulated.

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	-
	Entirely LED Technology	90%

Energy Management

- Energy audit in the last x year? – *No energy audit was carried out.*

Energy Efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE services / solutions	2.5 MW PV system	-	4,000	2019
	Deep renovation of the administrative building, including thermal insulation of the envelope, retrofitting the lighting system with LED, energy efficient VRF systems.	-	-	2019

Pilot 3. Transportation and Storage, Operation of airports

	
Number of employees	Total energy consumption
30	6,972 MWh/year








Short description of the SME

Pilot no.3 main activities are airports operation and management.


Technological processes

Final products/services: Lighting, Baggage Handling System, Tenants

Energy profile of the SME

						
2018	Electricity	LPG	Diesel for transport	Heating diesel	Petrol for transport	Energy produced and sold from RES
Consumption (MWh)	6,502	-	-	44 (tones/yr.)	3,507 (liters/yr.)	-
Cost (euro)	-	-	-	-	-	-

Buildings


	Total net surface	19,600	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	0	2	3


Note: No EPC available. Around 50% of the building's envelope is thermally insulated.


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Short description of the HVAC system: Chillers, Air Handling Units, Pumps, VRVs, Roof Top Units

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	No
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other: Baggage Handling system, airfield lighting, ATC	Yes



Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	
	Partially LED Technology	
	Entirely LED Technology	90%

Energy Management

Energy Efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Various Actions (more than 80 projects) contribute to more than 10GWh energy saving	-	-	-
	1.1MW Solar Power Generation Project	-	-	-
	Retrofitting the lighting system to LED technology	-	-	-

Pilot 4. Water Supply; Sewerage, Waste Management and Remediation Activities, Sewage

	
Number of employees	Total energy consumption
75	60,555 MWh/year








Short description of the SME

Pilot no. 4 has 8 pumping stations and two sewage treatment plants.


Technological processes

Final products/services: construction, operation and maintenance of the central sewerage system for the collection and treatment of municipal wastewater of the Greater Limassol area, as well as the construction of the basic infrastructure of the stormwater drainage system.

Energy profile of the SME

						
2018	Electricity	LPG	Diesel for transport	Heating diesel	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption	60,000 MWh	-	50 (liter/yr.)	50 (tones/yr.)	290 MWh (PV) + 1,500 MWh (Biogas)	-
Cost (euro)	-	-	-	-	-	-

Buildings


	Total net surface	2,000	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
2	3	1	6


Note: No thermal insulation for the building envelope.


Energy Performance Certificate: D class

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	No
	Ventilation	No
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	No



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

Energy audit in the last x year? – *Yes, the energy audit was carried out during the last 5 years.*

Energy Efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Installation of 184 kW PV system and 2x311 kW Biogas plant	-	-	-
Planned EE measures	Installation of 2x10 KW PV system in 2021	-	-	-








Pilot 5. Accommodation and Food Service Activities, Hotels

	
Number of employees	Total energy consumption
~ 200	5,685 MWh/year


Short description of the SME

Pilot site no.5 is a 4-star Hotel accommodation located in Limassol.

Energy profile of the SME

						
2018	Electricity	LPG	Diesel for transport	Heating Diesel	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption	2,859 (MWh)	26 (tones/yr.)	-	224 (tones/yr.)	-	-
Cost (euro)	-	-	-	-	-	-

Buildings

	Total net surface	24,000	sqm
	Total surface (buildings + outdoor premises)	-	sqm


Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	1	-	1


Note: No EPC available. There is no thermal insulation at the buildings envelope level.


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Short description of the HVAC system: *1 Heating oil burner is used for space heating, DHW and laundry. 1 air-cooled water chiller, VRF's and split units are used for space cooling.*

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	No
	Lighting	Yes
	Compressed air	No
	Ventilation	Yes
	Pumps	Yes
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Kitchen, Spa, restaurants and bars	Yes



Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes
	Laundry	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	-
	Entirely LED Technology	90%

Energy Management

- Energy audit in the last x year? – *Yes, the energy audit was carried out during the last 5 years,*
- *No implementation of EE & RES measures.*

Pilot 6. Wholesale and retail trade; repair of motor vehicles and motorcycles, Retail sale of bottled gas and petroleum, coal and fuel wood

	
Number of employees	Total energy consumption
50	97 MWh/year








Short description of the SME

The company is active in the supply, transportation and marketing of liquid fuels, lubricants and LPG to commercial and industrial customers. At the same time, it sells to the public at large all its products through a network of 96 service stations.


Technological processes

Final products/services: Retail sale of liquid fuels, lubricants and LPG - Administrative building of the company

Energy profile of the SME

						
2018	Electricity	LPG	Diesel for transport	Heating Diesel	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	97	-		-	-	-
Cost (euro)	-	-		-	-	-

Buildings


	Total net surface	1,200	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	0	0	1


Note:


- Energy Performance Certificate: B class
- Around 50% of the building's envelope is thermally insulated.

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	No
	Lighting	Yes
	Compressed air	No
	Ventilation	Yes
	Pumps	No
	Drives	No
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	-
	Entirely LED Technology	100%

Energy Management

Energy Efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Replacement of conventional lighting bulbs to LED technology	-	-	-
Planned EE measures	Improve the HVAC system for heating and cooling	-	-	-

Pilot 7. Manufacture of beverages

Pilot site 7: Manufacturing, Manufacture of beverages

	
Number of employees	Total energy consumption
100	5,878.5 MWh/year








Short description of the SME

The Company entered beverage production back in 1968, when it first started brewing Carlsberg Beer. It was granted the license to produce Carlsberg beer in Cyprus, which made Cyprus the first country to produce Carlsberg outside Denmark. Since then, the Group developed the production of several alcoholic and non-alcoholic beverages, most of them being today market leaders.


Technological processes

Final products/services: Carlsberg Beer

Energy profile of the SME

						
2018	Electricity	LPG	Light Fuel Oil	Heating Diesel	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption	3.5 (MWh)	-	500 (tones/yr.)	-	-	-
Cost (euro)	-	-	-	-	-	-

Buildings


	Total net surface	27,000	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	2	3	6


Note: No EPC available.


There is no thermal insulation on the building's envelope.

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes


Lighting System		
	No LED Technology	-
	Partially LED Technology	50-90%
	Entirely LED Technology	-

Energy Management



- Energy audit in the last x year? – *Yes, the energy audit was carried out during the last 5 years.*

Energy Efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Heat Recovery	0.5 million euro	30% reduction	2011
	Upgrade of Cooling System	0.3 million euro	24% reduction	2014
Planned EE measures	1,2 MW PV system	-	-	-
	Water recycle System	-	-	-

4.3. Germany

 Number of pilot sites: 7		
1.	25.29.0	Manufacture of other tanks, reservoirs and containers of metal
2.	96.01	Washing and (dry-)cleaning of textile and fur products
3.	11.05	Manufacture of beer
4.	10.73.1	Manufacture of macaroni, noodles, couscous and similar farinaceous product
5.	10.41	Manufacture of oils and fats
6.	31.0	Manufacture of furniture
7.	2110	Manufacture of pulp, paper and paperboard

Pilot 1. Manufacture of other tanks, reservoirs and containers of metal

	
Number of employees	Total energy consumption
74	8.714 MWh








Short description of the SME

Production, distribution and assembly of corrosion-resistant linings, coatings and steel apparatus for the industrial Corrosion protection.


Technological processes

Final products: 168 steel tanks/year + 850 other components/year

Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	1.755	5.640	1.039	-	-	-
Cost (euro)	302.000	219.000	29.000	-	-	-


Buildings

	Total gross surface	38.000	sqm
	Total surface (buildings + outdoor premises)	111.000	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	3	-	4

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes
	Other	-

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-



Energy Management

- Energy audit in the last year? – DIN EN ISO 50001

Energy Efficiency measures		Year
Implemented EE services	Energy Audit	2017
	Energy Management	2018

Pilot 2. Washing and (dry-)cleaning of textile and fur products

Pilot 2: Washing and (dry-) cleaning of textile and fur products

	
Number of employees	Total energy consumption
22	818,47 MWh








Short description of the SME

Washing of laundry for gastronomy, hotels, industrial companies and private households


Technological processes

Final products: 510.000 kg/year

Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	98,47	-	720,0	-	-	-
Cost (euro)	20.440	-	35.280	-	-	-


Buildings


	Total gross surface	1600	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	1	-	1

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Ventilation	Yes
	Pumps	Yes
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Pilot 3. Manufacture of beer

Energy Management

Energy Efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Planned EE measures	New Steam boiler	150.000	180,0	2021

	
Number of employees	Total energy consumption
45	Over 3,880 MWh/year








Short description of the SME

This company has been in family ownership for more than 200 years. The company produces annually with a total of 45 employees about 87.000 hectoliters beer and about 8,000 hectoliters of lemonade.

Technological processes


Final products: 87.000 hectoliters beer and 8,000 hectoliters of lemonade

Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES


Consumption (MWh)	944	-	2,784	-	135	-
Cost (euro)	168,453	-	107,936	-	0	-


Buildings

	Total gross surface	2500	sqm
	Total surface (buildings + outdoor premises)	15000	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	-	2

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	DK
	Pumps	Yes
	Drives	DK
	Electrical heat	DK
	Air conditioning	DK
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

Energy audit in the last year? – The last audit was carried out in 2017

Energy Efficiency measures		Year
Implemented EE services	Energy Audit	2017

Pilot 4. Manufacture of macaroni, noodles, couscous and similar farinaceous product

	
Number of employees	Total energy consumption
89	8,487 MWh/year








Short description of the SME

This company is family-owned for almost 50 years and produces about 10.000 tons of pasta per year. It is an EMAS certified company and has high interests in becoming more energy efficient.


Technological processes

Final products: ~10.000 tones/year

Energy profile of the SME

						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	746.5	8,014.2	-	-	1,945.8	-
Cost (euro)	142,828	303,446	-	-	0	-


Buildings


	Total gross surface	-	sqm
	Total surface (buildings + outdoor premises)	5506	sqm


Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	1	-	1

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	DK
	Ventilation	DK
	Pumps	DK
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last year? – *Yes, EMAS certified company since 2017.*

Energy efficiency measures		Year
Implemented EE services	Energy Audit	2017
	Energy Management	2017








Pilot 5. Manufacture of oils and fats

	
Number of employees	Total energy consumption
49	4,213 MWh/year


Short description of the SME

It is a manufacturer and distributor of high-quality standard and special fats and organic products for human nutrition. The product range includes edible fats, edible oils and organic products: butter, tourier butter, butterfat, clarified butter, margarine and melted margarine, vegetable fats and vegetable oils as well as special products even for unusual customer requests.

Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	1,284	2,680	-	-	615	-
Cost (euro)	-	-	-	-	-	-


Buildings


	Total gross surface	N/A	sqm
	Total surface (buildings + outdoor premises)	N/A	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	-	-	N/A

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	DK
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	DK
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last year? – *Yes, last audit was carried out in 2019 .*

Energy efficiency measures		Investment value (euro)	Year
Implemented EE services	Energy Audit	10.000	2019
	Energy Management (EMAS)	N/A	2019 - 2023

Pilot 6. Manufacture of furniture

	
Number of employees	Total energy consumption
234	14,991 MWh/year








Short description of the SME

Started as village joinery in Melle, in Lower Saxony, the company is now one of the leading manufacturers of office furniture in Germany.


Technological processes

Primary materials: 21.651 t/year


Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	3,088	98	5.657	-	6,231	-
Cost (euro)	-	-	-	-	-	-


Buildings

	Total net surface	28,902	sqm
	Total gross surface	44,412	sqm
	Total surface (buildings + outdoor premises)	73,714	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	-	2

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other	-

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last year? – *Yes, last audit was carried out in 2020.*

Energy efficiency measures		Investment value (euro)	Year
Implemented EE services	Energy Audit	N/A	2020
	Energy Management	N/A	1996-2021

Pilot 7. Manufacture of pulp, paper and paperboard

	
Number of employees	Total energy consumption
249	Over 606,500 MWh/year








Short description of the SME

The company operates one of the most modern recycling paper mills in Europe. The company has over 40 years of experience in ecologically integrated paper production. Around 300,000 tons of recycled paper are produced annually from 100% waste paper - energy-efficient, low-emission and resource-saving. The ranges of office paper, magazine paper and digital printing paper are certified with the leading environmental and consumer protection labels.


Technological processes

Final products: 303.167 t-paper/year.

Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	237,490	2,324	-	366,676	[34%]	-
Cost (euro)	-	-	-	-	-	-


Buildings

	Total gross surface	186,624	sqm
	Total surface (buildings + outdoor premises)	986,856	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	1	-	1

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:


Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	DK
	Ventilation	DK
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other	-

Heat		Yes/No/DK
	Technological process	
	Room heating	
	Domestic hot water preparation	
	Other	



Energy Management

Energy efficiency measures		Investment value (euro)	Year
Implemented EE services	Energy Audit	N/A	2019
	Energy Management	N/A	2000 - 2022

4.4. Greece

 Number of pilot sites: 5		
1.	C23.7	Cutting, shaping and finishing of stone
2.	C26.1.1	Manufacture of electronic components
3.	M71.1.2	Engineering activities and related technical consultancy
4.	C17.2.9	Manufacture of other articles of paper and paperboard
5.	C11.0.5	Manufacture of beer

Pilot 1. Cutting, shaping and finishing of stone

	
Number of employees	Total energy consumption
8	60 MWh/year

Short description of the SME








Factory of marble, granite, natural rocks and 3d cnc constructions

Technological processes


Primary material: 9365.81 tons (for 2020)

Final products: 4341.70 tons/year

Energy profile of the SME

						
2019	Electricity	Natural gas Propane	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	60	25.60	75	-	-	-
Cost (euro)	12554.80	1736	8776.30	-	-	-

Buildings

	Total gross surface	N/A	sqm
	Total surface (buildings + outdoor premises)	3048.80	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	1	3

Note: The company does not own the building.


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System


In the building for production, LPG mirrors are used for heating, while in the showrooms air-conditioning units and heat pumps are used.


Heating using propane and air-conditioning units

Cooling using air-conditioning units

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	No
	Room heating	No
	Domestic hot water preparation	No

Lighting System		
	No LED Technology	X
	Partially LED Technology	-
	Entirely LED Technology	-

Energy Management

- Energy audit in the last year? – *No*.
- Implemented EE measures, including RES – *None*.

Pilot 2. Manufacture of electronic components

	
Number of employees	Total energy consumption
20	20.742 MWh/year

Short description of the SME








The company is active in the field of the construction of electronic components, and specifically in the development of IoT meters for three-phase and single-phase installations

Technological processes


Primary materials: 48,696.33 €/year

Final products: 3,904 products/year

Energy profile of the SME

						
2018-2019	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	20.74	-	-	-	-	-
Cost (euro)	2,145.09	-	-	-	-	-

Buildings

	Total gross surface	-	sqm
	Total surface (buildings + outdoor premises)	245	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	-	2


Note: 107 sqm (buildings for production), 138 sqm (offices)


Note: The company does not own the building


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

For space heating and cooling, air-conditioning units are used, installed in each one of the offices.

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	No
	Ventilation	No
	Pumps	No
	Drives	No
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	No
	Room heating	No
	Domestic hot water preparation	No

Lighting System		
	No LED Technology	X
	Partially LED Technology	-
	Entirely LED Technology	-

Energy Management

- Energy audit in the last x year? – *No*.
- Implemented EE measures, including RES – *None*.

Pilot 3. Engineering activities and related technical consultancy

	
Number of employees	Total energy consumption
5	2.74 MWh/year or 0.24 toe/year

Short description of the SME








The company is active in the fields of Environment, Energy and Coal Economy. It offers comprehensive specialized techno-economic services related to coal economy (emission portfolio management) and projects of flexible mechanisms, renewable energy, energy saving, energy efficiency and greenhouse gas emission management strategies while promoting sustainable development and 'green' technologies. Particularly in the field of greenhouse gas management, the company services include analytical measurement - calculation of the carbon footprint of the operation of organizations and businesses, as well as of produced products, provided services and events. It is also able to propose strategies for reducing the carbon and energy footprint of companies, as well as plans for the acquisition of environmental and 'green' signals. It has executives with special expertise in the management of Greenhouse Gas Emissions and their quality compensation, while fully covering the needs of energy and carbonate inspections.

Technological processes


Primary materials: -

Final products: 150000 €/year

Energy profile of the SME

						
	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	2.10	0.64	-	-	-	-
Cost (euro)	1820	93	-	-	-	-

Buildings

	Total net surface	94	sqm
	Total surface (buildings + outdoor premises)	94	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	-	-	1


Note: The company does not own the building.

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System


For space heating: natural gas or/and air-conditioning unit


For space cooling: air-conditioning unit

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	No
	Lighting	Yes
	Compressed air	No

	Ventilation	No
	Pumps	No
	Drives	No
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	No
	Room heating	No
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? – No.
- *Implemented EE measures, including RES – Partial Lighting System upgrade, using LED technology.*
- Investment – *Own funds.*

Energy efficiency measures		Investment value (euro)	Year
Planned EE measures	Upgrade of Lighting System	250	2021

Pilot 4. Manufacture of other articles of paper and paperboard

	
Number of employees	Total energy consumption
57	46 GWh/year

Short description of the SME








The company is active in the field of paper processing. It focuses on the production of monolayer smooth paper from recycling paper.

Technological processes

Primary material: 4×10^7 kgr recycling paper


Final products: 3.4×10^7 kgr of paper and estimated turnover 11M€/year

Energy profile of the SME

						
	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	10000	36000	-	-	-	-

Cost (euro)	890K	730K	-	-	-	-
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Buildings

	Total net surface	35,640	sqm
	Total surface (buildings + outdoor premises)	43,560	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	5	2	8


Note: The company does own the building


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System


For space heating: oil/and air-conditioning unit

For space cooling: air-conditioning unit

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	Yes
	Room heating	No
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	-
	Entirely LED Technology	X

Energy Management

- Energy audit in the last year? – *Yes, focusing on the thermal energy on December 2019.*
- Implemented EE measures, including RES – *Lighting System upgrade, using LED technology, inverters, encoders (instead of tachogenerators), alternator reconstruction, vacuum pump upgrade, steam boiler with two stages economizer and fumes condensing chimney, anaerobic treatment.*
- Investment – *Own funds.*

Pilot 5. Manufacture of beer

	
Number of employees	Total energy consumption
5	42 MWh/year

Short description of the SME








The company is active in the production and distribution of beer since 2016, with a monthly capacity of 6000lt. The production process is based on the use of pure electricity at all stages of its production.

The products are available for wholesale and retail throughout Greece, while it is planned to create a privately owned building of 400sqm, to double the monthly production, to upgrade the equipment and the lighting system of the new installation, using modern automated and control systems, as well as to install a photovoltaic system to partially cover its electrical demand.


Technological processes

- Primary material: 2000kg of malted barley, grain, corn, oat, yeast with total cost equal to 25000€/year
- Final products: 60000lt of beer/year, 215 selling points, with annual turnover equal to 75000€

Energy profile of the SME

						
2019-2020	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	42	-	-	-	-	-
Cost (euro)	3650	-	-	-	-	-

Buildings

	Total gross surface	N/A	sqm
	Total surface (buildings + outdoor premises)	225	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	1	3

Note: The company does own the building

Note: 85 sqm (building for production), 60 sqm (offices), 80 sqm (warehouse)

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System


Both for space heating and for space cooling of the buildings, air-conditioning units are used.


2 units in the building for production


1 unit in the warehouse

1 unit in offices

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	No
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	No
	Domestic hot water preparation	No

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-


Energy Management

- Energy audit in the last year? – No.
- Implemented EE measures, including RES :
 - *upgrade of the lighting system using LED technology*
 - *installation of the speed controller for the ventilation system*



- *plan for installing a solar thermal system for hot water production*
 - *plan for installing a photovoltaic system*
 - *plan for installing a liquid gas boiler for hot water production*
- Investment – *Bank loan and European Union Grant through the Region of Epirus*

Energy efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Upgrade of the lighting system using LED technology	250	0.25	2020
Planned EE measures	Installation of a photovoltaic system	15000	12	2021
	Installation of solar thermal system and liquid gas boiler	4000	8	2021

4.5. Italy

 Number of pilot sites: 6		
1.	71.1	Data elaboration
2.	27.11.00	Manufacture of electric motors, generators and transformers
3.	96.01.10	Industrial laundries
4.	23.42.00	Manufacture of ceramic sanitary ware
5.	10.51.20	Dairy production
6.	96.01.10	Industrial laundries

Pilot 1. Data elaboration

	
Number of employees	Total energy consumption
6	11,630 MWh/year








Short description of the SME

The company has been working for over 10 years in the design of photovoltaic systems and 3 years ago it has opened its research laboratory on renewable sources and its environmental impact. The laboratory site is visited every year by an increasing number of students and tourists.

Technological processes


- Short description of the technological processes: green technologies and technological processes related to the production and transformation of energy
- Primary materials (units/year): kWh/(the type of system/type of source), Watt/sqm, wind speed m/s, water flow l/s
- Final products (units/year): 50,000 kWh/year

Energy profile of the SME

						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption	3	-	-	-	3	47

(MWh)						
Cost (euro)	2,000	--	-	-	-	8,000

Buildings


	Total gross surface	280	sqm
	Total surface (buildings + outdoor premises)	33,000	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	3	1	2


Energy Efficiency Rating from the Energy Performance Certificate: 74 (Class C)


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Short description of the HVAC system: the structure does not have heating systems with electric stoves, it does not have area ventilation and air conditioning system.

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	No
	Ventilation	No
	Pumps	Yes
	Drives	Yes
	Electrical heat	Yes
	Air conditioning	No
	Offices: PCs, printer, copier etc.	Yes

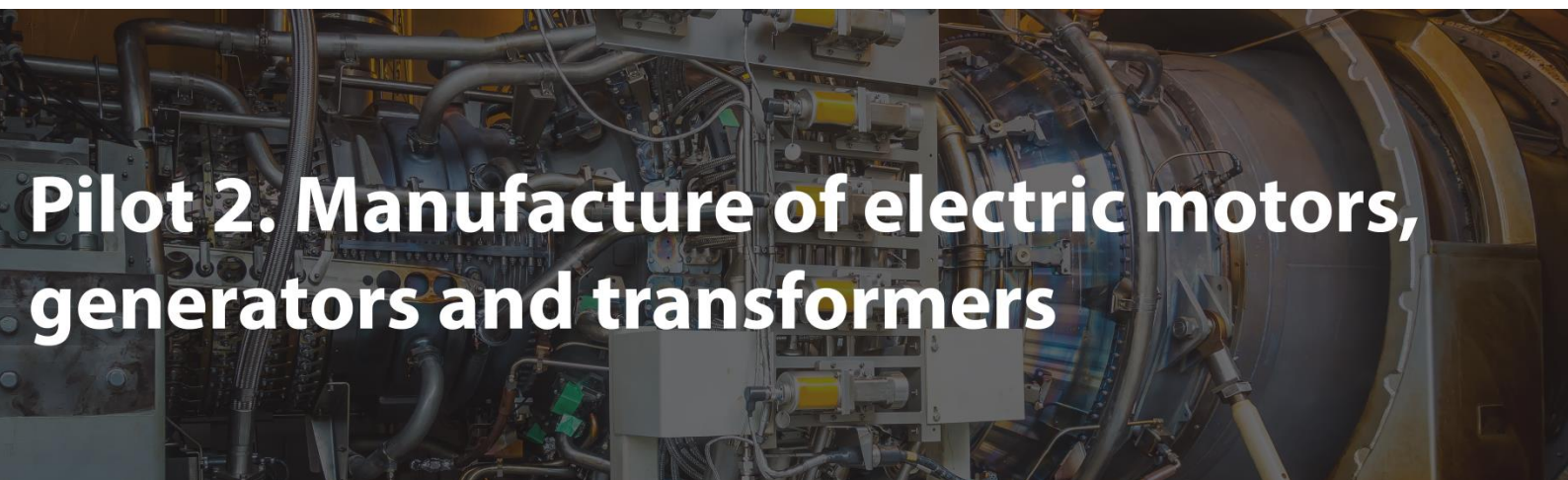
Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	No

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	X



Energy Management

- Energy audit in the last years? - *No.*
- Implemented EE measures, including RES? - *Yes, solar panel system, wind power plant, hydroelectric plant for electricity production.*

Energy efficiency measures		Investment (EURO)	Energy Savings (MWh/year)	Year
Implemented EE services	Energy Management	N/A	N/A	2017-2020
Planned EE measures within the Energy Audit	Monitoring system	5,000	5* increase in energy production linked to a more efficient operation	2021
	Photovoltaic panels	40,000	30	2021










Pilot 2. Manufacture of electric motors, generators and transformers

	
Number of employees	Total energy consumption
60	~ 156 MWh/year


Short description of the SME

Innovative SME registered in the specific section of the Chamber of Commerce of Rome, established in 2015, which designs, builds and manages micro-cogeneration plants for electrical and thermal energy based on gasification technology and holds an industrial patent for the current SyngaSmart line[®] of biomass fueled gasification and cogeneration plants.

Energy profile of the SME

						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	290	-	-	-	-	-
Cost (euro)	63,800	--	-	-	-	-

Buildings


	Total gross surface	4,581	sqm
	Total surface (buildings + outdoor premises)	10,000	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	1	-	1


Energy Efficiency Rating from the Energy Performance Certificate: N/A


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Short description of the HVAC system: The new settlement will be activated on 1/1/2021. There are no previous consumption data. An air conditioning system and heat pump domestic hot water production will be implemented. An LED lighting system will be installed to replace the previous neon lighting system.

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	No
	Ventilation	Yes
	Pumps	No
	Drives	Yes
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	No



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? - No.

Energy efficiency measures		Investment (EURO)	Energy Savings (MWh/year)	Year
Implemented EE services	N/A	N/A	N/A	N/A
Planned EE measures within the Energy Audit	Biomass micro cogeneration unit	290,000	290	2021

Pilot 3. Industrial laundries

	
Number of employees	Total energy consumption
35	3,900 MWh/year








Short description of the SME

The SME is an industrial laundry with a production capacity of about 10 ton of linen per shift. It is equipped with 2 heat generators, one spare to the other, from 3,000 kg/h (about 2 MW each). One generator had gas and the second one fuel oil.


Technological processes

- Primary materials: 345,000 Smc natural gas + 10,000 kg BTZ/year
- Final products: 2,163 ton/year of laundry washed

Energy profile of the SME

						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	610	3,315	119	3,434	129	39
Cost (euro)	96,000	110,000	-	-	-	-

Buildings


	Total gross surface	3,500	sqm
	Total surface (buildings + outdoor premises)	15,000	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	0	2


Energy Efficiency Rating from the Energy Performance Certificate: Class F


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Short description of the HVAC system: the entire complex of buildings is heated with the thermal power plant for steam production for industrial use. The heating of the administrative part is through radiators, one part of the plant is not equipped with a heating system as it is heated with the thermal dispersion of machinery, while the remaining part of the production plant is heated with water or steam fan coils. The lighting system is with neon lamps.

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	No
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	X
	Partially LED Technology	-
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? – No.
- Implemented EE measures, including RES? - Yes. *Photovoltaic system (2011), condensate re-evaporator (2012), economizer (2014).*

Energy efficiency measures		Investment (EURO)	Energy Savings (MWh/year)	Year
Implemented EE services	Photovoltaic panels	400,000	130	2011
	Re-evaporator	21,500	Not available	2012
	Economizer	15,000	5% thermal energy	2014
Planned EE measures within the Energy Audit	Energy Audit	N/A	N/A	2021

Pilot 4. Manufacture of ceramic sanitary ware

	
Number of employees	Total energy consumption
160	29,932 MWh/year

Short description of the SME

This SME is one of the main leaders in the Italian and international ceramic sector, an innovative company, and a reference point for the bathroom furniture sector. Its business dates to the origins of the production tradition of the ceramic district to which the company belongs, which over time has been able to cope with the challenges of the market. In this context, the founders have skilfully tailored the artisan tradition together with the bursting technological innovation in a process of continuous research and renewal, based on work-ethic and values that put at the centre the human dimension, and the typical know-how of Italian productivity.

Technological processes


- Primary materials: 8,436 ton/year
- Final products: 233,872 unit/year

Energy profile of the SME

						
2018	Electricity	Natural	Purchased	Purchased	Energy	Energy

		gas	Liquid fuel	thermal energy	produced and consumed locally from RES	produced and sold from RES
Consumption (MWh)	3,654	26,277	-	-	-	-
Cost (euro)	367,000	621,000	-	-	-	-

Buildings


	Total gross surface	25,000	sqm
	Total surface (buildings + outdoor premises)	83,500	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	-	2


Energy Efficiency Rating from the Energy Performance Certificate: 74 (Class C)


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Short description of the HVAC system: in the production area, the necessary heat is provided by gas heat generators, while the offices use heat pump air conditioners.

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	No
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? - *Yes, the last audit was carried out in 2015.*
- Implemented EE measures, including RES? - *Yes, power factor correction, heat recovery system, replacement of lighting with LED lamps, photovoltaic system.*

Energy efficiency measures		Investment (EURO)	Energy Savings (MWh/year)	Year
Implemented EE services	Energy Audit	6,480	-	2015
	Energy Management	-	-	-
Planned EE measures within the Energy Audit	Monitoring system	25,500	-	2018
	Photovoltaic panels	345,000	585	2021

Pilot 5. Dairy production

	
Number of employees	Total energy consumption
8	2,200 MWh/year








Short description of the SME

With over 60 years of experience in the sector, this pilot site produces PDO Grana Padano. The company treats milk from local producers and through a process that combines tradition and modern techniques delivers a high-quality product.


Technological processes:

- Primary materials: milk to be processed 40 tons/day (about 14000 tons/year)
- Final products: cheese produced 790 tons/year

Energy profile of the SME

						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	700	1,500	-	-	-	-
Cost (euro)	103,400	85,600	-	-	-	-

Buildings


	Total net surface	450	sqm
	Total surface (buildings + outdoor premises)	500	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	1	3


Energy Efficiency Rating from the Energy Performance Certificate: N/A


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Short description of the HVAC system: There is a boiler where the heat accumulated by the thermal plant arrives and where the heat exchange takes place. It heats up from mid-October to the end of April. With this system, the hot chamber, the cloth drying room and the staff refreshment room are also heated. The offices are heated by a gas boiler and radiators in the various rooms.

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	No
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? - *No*.
- Implemented EE measures, including RES? – *None*.

Pilot 6. Industrial laundries

	
Number of employees	Total energy consumption
6	2042,200 MWh/year








Short description of the SME

Over 20 years in the sector, this industrial laundry has 60% of customers in the hotel sector and 40% in the hospital sector.

Technological processes


- Primary materials: Water 91,554 mc, out of which 26,950 from mains + 25,955 from internal biological purifier + 38,649 from surface water course; gas 1,322,101 mc
- Final products: washed linen (quintals)

Energy profile of the SME

						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption	2,042 [MWh]	1,322,000 [m ³]	90,700 [litres]	-	-	-

Cost (euro)	360,290	418,700	-	-	-	-
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Buildings


	Total gross surface	~ 13,500	sqm
	Total surface (buildings + outdoor premises)	~ 24,500	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	2	1	3


Energy Efficiency Rating from the Energy Performance Certificate: N/A


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

Short description of the HVAC system: only for offices air conditioning system with gas R410A 12.70 Kg 26.51 TON CO2

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	No
	Offices: PCs, printer, copier etc.	Yes


Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	-
	Entirely LED Technology	X



Energy Management

- Energy audit in the last years? - *No*.
- Implemented EE measures, including RES? - *Yes, condense return*.

4.6. Romania

		Number of pilot sites: 7
1.	1107	Production of non-alcoholic soft drinks; production of mineral waters and other bottled waters
2.	1051	Manufacture of dairy products and cheeses
3.	5510	Hotels and other similar accommodation facilities
4.	5510	Hotels and other similar accommodation facilities
5.	0811	Quarrying of ornamental and building stone, limestone, gypsum, chalk and slate
6.	1081	Manufacture of sugar
7.	1310	Preparation and spinning of textile fibres

Pilot 1. Production of non-alcoholic soft drinks; production of mineral waters and other bottled waters

	
Number of employees	Total energy consumption
64	742 MWh








Short description of the SME

Pilot site no. 1 was founded in 2005 and is a company with Romanian private capital. The company deals with the production of carbonated and non-carbonated soft drinks but also with the marketing and installation of new and second-hand bottling lines.


Energy profile of the SME

Energy sources

Electricity: National Energy System


						
2012	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	742	-	-	-	-	-
Cost (euro)	-	--	-	-	-	-


Buildings


	Total gross surface	-	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	1	-	1

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	No
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	DK
	Room heating	DK
	Domestic hot water preparation	DK



Lighting System		
	No LED Technology	X
	Partially LED Technology	-
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? - *The last Energy Audit was carried out in 2013.*

Energy efficiency measures		Energy Savings (MWh/year)	Year
Implemented EE services	Energy Audit	N/A	2013
Planned EE measures within the Energy Audit	variable speed drive of pumps	Potential saving of 94.28 MWh/year (12,7%)	
	Retrofitting the lighting system		
	implementation of a remote management system to monitor electricity consumption		
	Other solutions		

Pilot 2. Manufacture of dairy products and cheeses

	
Number of employees	Total energy consumption
235	11,715 MWh

Short description of the SME

The main activity of the Pilot site no.2 is the manufacturing of dairy product and cheese.

Technological processes

The entity uses, in the production processes, both electricity and thermal energy (heat and cold), having as support a wide variety of energy fluids (steam, cold water, methane gas, cooling fluids). Production processes involve the use of various forms of energy for heating/cooling, electric drives (pumps, compressors, homogenizers, cutter), indoor and outdoor lighting etc.








Final products: average 1,194,691 l/month (reference year 2017)

Energy profile of the SME

Energy sources:


Electricity is provided by connection to the 20 kV electrical distribution network.

The methane gas necessary for the technological processes (thermal energy production) is provided from the local distribution network through a regulation/measurement station.

						
2017	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal	Energy produced and	Energy produced



				energy	consumed locally from RES	and sold from RES
Consumption (MWh)	2045	4733	4910	-	-	-
Cost (euro)	617.757			-	-	-


Buildings

	Total gross surface	-	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	4	1	5

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	DK
	Pumps	Yes
	Drives	Yes
	Electrical heat	DK
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? –Yes, in 2018.

Energy efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Energy Audit	N/A	N/A	2018
Planned EE measures within the energy audit	Cogeneration unit	677.600 EUR	Estimated energy saving: 822 MWh/year	N/A
	Implementation of a monitoring of the energy consumptions and costs	677.600 EUR	Estimated energy saving: 822 MWh/year	N/A
	Replacement of current piston chillers with screw chillers or modernization of existing chillers			N/A
	RES – Photovoltaic system for self-consumption			N/A
	Other solutions			N/A
	RES- solar thermal collectors			N/A








Pilot 3. Hotels and other similar accommodation facilities

	
Number of employees	Total energy consumption
83	1,478 MWh/year


Short description of the SME

The pilot site no. 3 is a hotel situated in Romania. The hotel has 70 rooms and two conference rooms.

Energy profile of the SME

						
2012	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	380	1098	-	-	-	-
Cost (euro)	-	-	-	-	-	-


Buildings


	Total gross surface	-	sqm
	Total surface (buildings + outdoor premises)	-	sqm


Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	0	0	1

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	No
	Lighting	Yes
	Compressed air	No
	Ventilation	Yes
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? - *The last energy audit carried out within the entity was in 2013.*

Energy efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Energy Audit	N/A	N/A	2013
	Transition from low voltage to medium voltage	29.700	Cost saving: 12.500 EUR/year	2013
Planned EE measures within the Energy Audit	Retrofitting the lighting system and motion sensors	N/A	234 MWh/year	N/A
	Reactive power compensation	N/A		N/A
	Building Energy Management System	N/A		N/A
	Other	N/A		N/A

Pilot 4. Hotels and other similar accommodation facilities

	
Number of employees	Total energy consumption
249	749 MWh/an








Short description of the SME

The pilot site no.4 is a 4-star hotel in Romania. The capacity of the hotel is 57 rooms, one restaurant, a bistro and a conference room.


Technological processes

Energy profile of the SME

Energy sources: Two boilers in condensation (2x225 kW) operating on methane gas.

						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	206.3	543	-	-	-	-
Cost (euro)	749.3	-	-	-	-	-

Buildings


	Total gross surface	3014.3	sqm
	Total net surface	2239	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	-	-	1


Existing energy performance certificate: Class - C


The building was constructed in 2007.

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	No
	Lighting	Yes
	Compressed air	No
	Ventilation	Yes
	Pumps	No
	Drives	Yes
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	X
	Partially LED Technology	-
	Entirely LED Technology	-

Energy management

Energy efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Energy Audit	-	-	2015
Planned EE measures within the Energy Audit	Thermal insulation of the building	414389	566 (75%)	
	Replacement of radiators with fan coils			
	Interior lighting with LED technology			
	Lighting control sensors			
	Building Energy Management System			
	RES: Photovoltaic system			
	RES: Solar thermal collector system			
	Transition from low voltage to medium voltage			








Pilot 5. Quarrying of ornamental and building stone, limestone, gypsum, chalk and slate

	
Number of employees	Total energy consumption
125	2,988 MWh/year


Short description of the SME

Pilot site no.5 is a trading company whose main object of activity is the extraction, production and marketing of quarry aggregates: andesite, coarse aggregate, broken stone, cubic stone, rough stone and natural pavement.

Energy profile of the SME


						
2020	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	2846	142	9,785.1 MWh	-	-	-
Cost (euro)	327.404	3564	1.038.317	-	-	-


Buildings


	Total gross surface	-	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	-	-	-

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	-
	Lighting	-
	Compressed air	-
	Ventilation	-
	Pumps	-
	Drives	-
	Electrical heat	-
	Air conditioning	-
	Offices: PCs, printer, copier etc.	-
	Other	-



Heat		Yes/No/DK
	Technological process	-
	Room heating	-
	Domestic hot water preparation	-
	Other	-

Lighting System		
	No LED Technology	-
	Partially LED Technology	-
	Entirely LED Technology	-

Energy Management

Energy efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE measures	Energy Management	-	-	2015-2020
	Reactive power compensation	-	-	2016-2020

Pilot 6. Manufacture of sugar

	
Number of employees	Total energy consumption
194	157,423 MWh/year or 13,536 toe/year

Short description of the SME

Pilot no.6 is a manufacturer of sugar, which produces sugar from beet sugar.

Technological processes

The technological flow of beet sugar production is the following:

- Transport and storage of beets
- Washing & cutting of the beets
- Extraction
- Purification of the diffusion juice
- Evaporation
- Boiling – crystallization
- Centrifugation
- Sugar conditioning








Production capacity: 600 t/ 24 h.

Achieved production in 2019 (7 months): approximately 80.000 tons of sugar.

Energy profile of the SME

The electricity supplying is made by transformers of different capacities with delimitation on Medium Voltage.


There is also a cogeneration plant which has the following equipment's: steam boilers, air preheaters, economizers, superheaters, steam turbines. The two steam turbines are connected to two generators, which supply electricity to the national grid.

						
2019	Electricity	Natural gas	Diesel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and injected to the grid
Consumption (MWh)	2,490	152,425	2,430	-	-	197
Cost (euro)	~ 237.000	~4,000,000	~ 252,000	-	-	N/A

The cost for methane gas consumption represents 86% of the total energy cost, which includes also cost with electricity, water, industrial water, gasoline and diesel.


Buildings

The existing Energy Audit Report did not contain information about the buildings.


	Total gross surface	N/A	sqm
	Total surface (buildings + outdoor premises)	N/A	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
N/A	N/A	N/A	N/A


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes

	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	DK
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes



Lighting System		
	No LED Technology	X
	Partially LED Technology	-
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? - Yes, the last energy audit was carried out in 2020. The energy efficiency measures proposed within the energy audit are listed below:

Energy efficiency measures		Investment (Euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Energy Audit	-	-	2020
	Retrofitting of the lighting system with LED technology	~ 40,000	137	2020
Planned EE measures within the Energy Audit	Variable speed drive for pump motor	~ 33,000	68	2020
	Energy monitoring system	200,000	N/A	2020

Pilot 7. Preparation and spinning of textile fibres

	
Number of employees	Total energy consumption
112	25,287








Short description of the SME

Pilot no. 7 is a manufacturer of monofilaments, precisely synthetic monofilaments for technical use.


Technological processes

The raw materials in the form of granules are heat treated by two crystallizers to improve their properties. After, it is transported to the dryers where the granules are treated for dehumidification. The granules melt in an extruder. The fluid material is then processed to wires.

Energy profile of the SME


						
2011	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	6,159	19,128	-	-	-	-
Cost (euro)	-	-	-	-	-	-


Buildings


	Total gross surface	5500	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	1	0	2

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	DK
	Pumps	Yes
	Drives	Yes
	Electrical heat	No
	Air conditioning	No
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	Yes


Lighting System		
	No LED Technology	X
	Partially LED Technology	-
	Entirely LED Technology	-

Energy Management



- Energy audit in the last years? - *The last energy audit was made in 2012. The proposed energy efficiency measures are presented in the following table.*

Energy efficiency measures		Investment (euro)	Energy Savings (MWh/year)	Year
Implemented EE services	Energy Audit	-	-	2012
	Reactive power compensation	-	-	2012
Planned EE measures within the Energy Audit	Retrofitting the lighting system	-	11.54	2012
	Variable speed drive	9,552	78.09	2012
	Monitoring energy consumption	23,898	123.18	2012

4.7. Slovenia

		
Number of pilot sites: 6		
1.	C22.290	Manufacture of other plastic products
2.	C27.120	Manufacture of electricity distribution and control apparatus
3.	C25.990	Manufacture of other fabricated metal products
4.	D35.220	Distribution of gaseous fuels
5.	C23.320	Manufacture of bricks, tiles and construction clay products
6.	M72.190	Other research and experimental development on natural sciences and engineering

Pilot 1. Manufacture of other plastic products

	
Number of employees	Total energy consumption
More than 250	7,144 MWh/year [2019]








Short description of the SME

This SME, formed as LLC is an innovative, fast-growing market-oriented company, based in Velenje, Slovenia. They have more than 40 years of experience in the development and the production of plastic products with injection moulding technology. In collaboration with large international corporations, this SME creates innovation in the field of advanced, environmentally friendly plastic materials, products, and technologies with an emphasis on innovative solutions of bio-based and recycled plastic products. The company is growing substantially, and it has more than 250 people employed at the company. The SME is in the 2nd climate zone, and its primal economic activity / NACE CODE is 22.290.

The company also demonstrates its flexibility and breadth of knowledge in various fields, from furniture, automotive and electrical industries to products developed for the home and kitchen. References therefore also apply to more technologically demanding products that come into a contact with food and drinks. In a production space that covers a total of 15.000 m², spanning over few production facilities, and with 50 plastic injection moulding machines between 50 and 1.000 tonnes of clamping force, this SME offers an excellent R&D support and experience in manufacturing of injection moulded products (single- or multi-component, over moulded, assembled, ultrasonically and thermally welded plastic industrial products).

This SME strives for sustainable development and uses natural materials. The company is well endowed in the circular economy programs and they strive for more and more implementation of EE measures. Their motto is to develop innovative products, that are produced from eco materials and offer solutions that enhance and increase the value of life.


Energy profile of the SME

						
	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
2017						
Consumption (MWh)	6,828	-	negligible	480	-	-
Cost (euro)	426,969	-	-	21,840	-	-
2018						
Consumption (MWh)	7,573	-	negligible	382	-	-
Cost (euro)	471,519	-	-	18,243	-	-
2019						
Consumption (MWh)	6,797	-	negligible	347	-	-
Cost (euro)	629,649	-	-	18,226	-	-

Water	2016	2017	2018	2019
Consumption [m³]	2,894	3,222	2,544	2,703
Cost (€)	17,467	8,629	9,602	7,861

If we focus on the year 2019, electricity cost presented 96 % of all costs, district heating 3 %, and water consumption only 1 %. Consumption of energy sources grew from 2016-2018 for 12 %, then fell by 6 % in 2019.

Buildings


	Total gross surface	15,000	sqm
	Total surface (buildings + outdoor premises)	-	sqm

Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	5	2	8


Pilot 1 has 8 buildings, which include halls for production, storage areas, maintenance, offices, cleaning facilities, laboratories, kitchen, dining room, administrative areas etc. The administrative unit was completely energy refurbished (façade, insulation, roof, windows, doors, systems etc.) in 2017. Thermal insulation in production halls is not that important since there is a great surplus of internal heat gains. Where it was necessary, building parts /sections were already energy refurbished. An energy audit has been made for this SME in 2020.

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System


The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	DK
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other: Kitchen, dining room, laboratories	Yes

For improving work conditions, the SME has installed many AC units (split system). Combined cooling power is 274 kW. AC's are installed in production halls, smaller units are installed in administrative units, and other parts. The combined cooling power of those units is 247 kW. For technological processes, the SME has installed technological cooling, set at 1,338.6 kW. SI-SME01 has two separate compressed air systems (both in production halls) with combined compressor power at 74 kW. Production halls are ventilated naturally, while administrative units are ventilated mechanically. Administrative units have installed all the necessary office equipment (computers, printers etc.), and the kitchen has installed kitchen appliances.



Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes
	Other	No

Production halls do not need heating since there is much excess waste heat from the production of plastic products with injection moulding technology. Administrative areas, laboratories and warehouses are, however, heated. Some administrative offices, warehouses, laboratories, and kitchen are heated with district heating, the rest are heated with heat pumps. Domestic hot water preparation is achieved with heat pumps.








Lighting System		
	No LED Technology	-
	Partially LED Technology	-
	Entirely LED Technology	X

Almost whole lighting had entirely LED technology. The few lights (with FLUO or CFL lighting) is being replaced. The lighting in the SME is very energy efficient, also, motion sensors are installed where there is irregular presence in the room/space.

Pilot 2. Manufacture of electricity distribution and control apparatus

	
Number of employees	Total energy consumption
9	13,445 MWh/year (2019)


Energy profile of the SME

						
	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	7,394	6,051	negligible	-	-	-
Cost (euro)	1,338.11	1,888.25	-	-	-	-

Company's energy consumption was 13,445 kWh in 2019, out of which 45 % accounted as heat energy from natural gas as a source (637 m³ of natural gas consumed in 2019, converted to MWh/yr) and the rest accounted as electrical energy (55 %).


Water	2019
Consumption [m³]	29
Cost (€)	80


Buildings


	Total gross surface	-	sqm
	Total surface (buildings + outdoor premises)	-	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
1	0	0	1

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System



The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other	DK








Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	Yes
	Other	No

Lighting System		
	No LED Technology	DK
	Partially LED Technology	DK
	Entirely LED Technology	DK

Pilot 3. Manufacture of other fabricated metal products

	
Number of employees	Total energy consumption
249	12,662.2 MWh/year [2019]

Energy profile of the SME


						
	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	12,568.3	-	-	93.90	-	-
Cost (euro)	1,143,352.7	-	-	11,989.39	-	-


Water	2019 (only from SEP-DEC)
Consumption [m³]	1,225.15
Cost (€)	6,653.61


SME uses heat energy from Heat power plant Ljubljana for district heating, but almost all the energy consumption is attributed to electrical energy consumption.

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System



The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Dk
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other	DK








Heat		Yes/No/DK
	Technological process	DK
	Room heating	Yes
	Domestic hot water preparation	Yes
	Other	No

Lighting System		
	No LED Technology	N/A
	Partially LED Technology	N/A
	Entirely LED Technology	N/A

Pilot 4. Distribution of gaseous fuels

	
Number of employees	Total energy consumption
85	1,346.61 MWh/year [2019]

Energy profile of the SME


						
	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	358.478	362.312		625.815	-	-
Cost (euro)	53,409.9	NDA		NDA	-	-


Company's energy consumption was 1.346,61 MWh in 2019, out of which 46 % accounted as heat energy from LPG, 27 % as heat energy from natural gas, and the rest accounted as electrical energy (27 %).


Water	2019
Consumption [m³]	3,963
Cost (€)	63,960.81

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System



The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	DK
	Lighting	Yes
	Compressed air	DK
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	DK
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other	DK








Heat		Yes/No/DK
	Technological process	DK
	Room heating	Yes
	Domestic hot water preparation	Yes
	Other	No

Lighting System		
	No LED Technology	N/A
	Partially LED Technology	N/A
	Entirely LED Technology	N/A

Pilot 5. Manufacture of bricks, tiles and construction clay products

	
Number of employees	Total energy consumption
132	63,146 MWh/year [2019]

Energy profile of the SME


						
2019	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	7,510	55,636	-	-	-	-
Cost (euro)	570,619.81	1,529,361.80	-	-	-	-


Water	2019
Consumption [m³]	3,755
Cost (€)	18,592.23


SME uses a significant amount of heat energy due to the technological processes in the company, which are the core of its functioning. 88 % of consumed energy is accounted to heat energy.

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System



The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	DK
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other	DK








Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes
	Other	No

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Pilot 6. Other research and experimental development on natural sciences and engineering


	
Number of employees	Total energy consumption
35	15,559.6 MWh/year [2019]

Energy profile of the SME


						
2019	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	2,692.1	1,883.5	-	-	10,984	-
Cost (euro)	250,502	130,810	-	-	106,019.10	-


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:


Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes

	Ventilation	Yes
	Pumps	Yes
	Drives	DK
	Electrical heat	DK
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other	DK



Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes
	Other	No

Lighting System		
	No LED Technology	N/A
	Partially LED Technology	N/A
	Entirely LED Technology	N/A

4.8. Spain

		Number of pilot sites: 7
1.	15130	Food industry – Cold meat production
2.	15130	Food industry – Cold meat production
3.	15130	Food industry – Cold meat production
4.	15130	Food industry – Cold meat production
5.	15130	Food industry – Cold meat production
6.	15130	Food industry – Cold meat production
7.	15130	Food industry – Cold meat production

Pilot 1. Food Industry

	
Number of employees	Total energy consumption
210	Over 11,630 MWh/year








Short description of the SME

The SME in the food industry, this Pilot site 1 corresponds to a manufacturing facility of frozen meat.

Technological processes


Final products: 24,500 tones/year


Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	14,200	-	19,180	-	-	-
Cost (euro)	1,208,616	-	655,903	-	-	-

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	DK
	Room heating	Yes
	Domestic hot water preparation	DK

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? *No energy audit was carried out.*

Pilot 2. Food Industry

	
Number of employees	Total energy consumption
49	Over 11,100 MWh/year








Short description of the SME

SME in the food industry, this Pilot site 2 corresponds to a manufacturing facility of fresh meat.

Technological processes


Final products: 65000 ton/year


Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	39,050	22,000	-	-	-	-
Cost (euro)	3,577,395	680,740	-	-	-	-

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	DK
	Room heating	Yes
	Domestic hot water preparation	DK

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? – No.

Pilot 3. Food Industry

	
Number of employees	Total energy consumption
54	Less than 11,100 MWh/year








Short description of the SME

Pilot site 3 is from the food industry having as main activity manufacturing of pizzas.

Technological processes


Final products: 7500 tones/year


Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	2,842	2,905	-	-	-	-
Cost (euro)	225,571	234,063	-	-	-	-

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	No
	Pumps	Yes
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	DK
	Room heating	Yes
	Domestic hot water preparation	DK

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? - No.

Pilot 4. Food Industry

	
Number of employees	Total energy consumption
68	11,630 MWh/year








Short description of the SME

Pilot site no 4. corresponds to a manufacturing facility of frozen meat.

Technological processes


Final products: 6000 tones/year


Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	4,766	-	2,032	-	-	-
Cost (euro)	358,500	-	134,000	-	-	-

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	Yes
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	DK
	Room heating	Yes
	Domestic hot water preparation	DK

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? – No.

Pilot 5. Food Industry

	
Number of employees	Total energy consumption
154	Over 11,630 MWh/year








Short description of the SME

Pilot site no. 5 represents a manufacturing facility of frozen meat.

Technological processes


Final products: 4500 tones/year


Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	10,500	-	4550	-	-	-
Cost (euro)	1,180,555	-	257,600	-	-	-

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	DK
	Room heating	Yes
	Domestic hot water preparation	DK

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? – No.

Pilot 6. Food Industry

	
Number of employees	Total energy consumption
152	Over 11,630 MWh/year








Short description of the SME

The pilot site no. 6 represents a facility of frozen meat.

Technological processes


Final products: 10,500 ton/year


Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	17,500	-	5,305	-	-	-
Cost (euro)	1,280,000	-	370,600	-	-	-

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	DK
	Room heating	Yes
	Domestic hot water preparation	DK

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

- Energy audit in the last years? – No.

Pilot 7. Food Industry

	
Number of employees	Total energy consumption
183	Over 11,630 MWh/year








Short description of the SME

Pilot site no. 7 represents a manufacturing facility of frozen meat.

Technological processes


Final products: 30,500 tones/year


Energy profile of the SME


						
2018	Electricity	Natural gas	Purchased Liquid fuel	Purchased thermal energy	Energy produced and consumed locally from RES	Energy produced and sold from RES
Consumption (MWh)	18,565	27,623	-	-	-	-
Cost (euro)	1,359,929	841,206	-	-	-	-

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	No
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes


Heat		Yes/No/DK
	Technological process	DK
	Room heating	Yes
	Domestic hot water preparation	DK

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-



Energy Management

- Energy audit in the last years? – No.

4.9. United Kingdom

		Number of pilot sites: 6
1.	C 25.11	Manufacture of metal structures and parts of structures
2.	C20.20 C20.5	Manufacture of pesticides and other agro-chemical products Manufacture of other chemical products
3.	C20.9	Manufacture of other fabricated metal products
4.	C25.11	Manufacture of metal structures and parts of structures
5.	C28	Manufacture of machinery and equipment
6.	C32	Other manufacturing – Accessibility solutions for washrooms/bathrooms

Pilot 1. Manufacture of metal structures and parts of structures

	
Number of employees	Total energy consumption
60	391 MWh/year (2019)

Short description of the SME

The company designs and manufactures products that protect personnel and equipment from the hazards of hydrocarbon explosion, fire, radiated heat and industrial noise in all environments. Principle market areas include Upstream Oil & Gas, Downstream Oil & Gas, Power Generation, Petro-Chemical sites and nuclear sites.

Technological processes

- Optical 4KW Fiber Laser -cutting of steel - electric
- Mechanical shear cutting -electric
- Mechanical bending and forming -electric
- Fabrication and assembly
- Welding - electric
- Mechanical lifting - electric
- Stainless steel chemical cleaning
- Packing and dispatch (Diesel forklift trucks)

Energy profile of the SME

Energy supply


Electricity = off grid

Heating = Gas plax radiant heaters wall mounted

Water heating = electricity

Buildings

- Short description of the buildings
- Main factory building split into 3 bays
- 1 external rubber tented building
- 1 external shed galvanized steel
- Office village made up of Portakabin buildings
- Total net surface [sqm] = 7000
- Total gross surface [sqm] = 7200
- Total roof surface (triangular) [sqm] = 8000
- Total surface (buildings + outdoor premises) [sqm] = 14000


	Total gross surface	7200	sqm
	Total surface (buildings + outdoor premises)	14,000	sqm
Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
5	1	1	7

- ISO14001:2015 certification in place LRQA accredited by UKAS


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System


- Short description about the HVAC system;
- Factory heating gas Plax wall mounted temperature setting frost protection 6 'C and when occupied = 11'C
- 3 no. reversing air conditioning units wall mounted

The main consumers within the SME by energy type:



Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes

	Pumps	DK
	Drives	DK
	Electrical heat	Yes (offices)
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes
	Other	No

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Pilot 2. Manufacture of pesticides and other agro-chemical products

	
Number of employees	Total energy consumption
Between 51-200	N/A

Short description of the SME

The company is a contract chemical processing company based in the UK with experience in formulating and processing specialty chemicals for multi-national chemical and agrochemical companies.


The company offers bespoke outsourcing solutions for many different sectors of the industry and have specialist knowledge in the following areas: flame retardants, agrochemicals, biocides, herbicides and animal feed additives.

Technological processes

Production of granules by extrusion, roll compacting, impregnation and coating; size reduction of solids by crushing, milling and micronizing. Other powder processing services include blending and screening.

Formulation and supply of low-pressure extruded granule products primarily for the global agrochemical industry.

Buildings


	Total gross surface	-	sqm
	Total surface (buildings + outdoor premises)	-	sqm


Number of the administrative buildings	Number of the buildings for production	Number of the buildings dedicated for warehouses	Total number of the buildings
-	-	--	-


Other: ISO 14001 certified

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System



The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Pilot 3. Manufacture of other fabricated metal products

	
Number of employees	Total energy consumption
Between 51-200	N/A

Short description of the SME

Provider of integrated welding and engineering services across the Oil and Gas, Power Generation, Nuclear and Renewable industries.


Technological processes


- Production of flow loops, high pressure pipework and valve stands in Super Duplex, alloy steel and Inconel clad pipe materials.
- weld inlay and cladding using computer controlled Hot Wire TIG machines depositing Inconel, stainless steel, aluminum bronze and Stellite on valves, bonnets, bulkhead plates and spool tree bodies. production of subsea connection systems, API weld neck flanges, high pressure wellhead components and oil tool equipment.


Other: ISO 14001:2004 certified by UKAS

HVAC (Heating, Ventilation and Air Conditioning) and Lighting System



The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK
	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Pilot 4. Manufacture of machinery and equipment

	
Number of employees	Total energy consumption
Between 51-200	N/A

Short description of the SME


The company is a leading designer in Rainscreen Cladding and Facade Systems. The company offers a range of rainscreen cladding solutions for traditional and contemporary construction projects.

Technological processes


Manufacture of engineered metal rainscreen cladding and architectural fabrication; Aluminum extrusion.


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK

	Electrical heat	Yes
	Air conditioning	No
	Offices: PCs, printer, copier etc.	Yes



Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes(central heating system)
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	-
	Entirely LED Technology	X

Energy Management

Energy efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Implemented EE measures	Replaced all shop floor and office lighting with LED	-	-	2019
	Replaced boilers	-	-	2019

Pilot 4. Manufacture of metal structures and parts of structures

	
Number of employees	Total energy consumption
Between 11-50	-

Short description of the SME


The company provides services of design and development of light engineered products, with a manufacturing facility and multiple product groups.

Technological processes


CNC Turning; CNC Milling; Injection Moulding; 3D Printing; Rapid Prototyping; Reverse Engineering; Cubicle Hardware; Grease & Oil Lubrication Systems; Light Fabrication and Assembly; CMM & Faro Arm Measurement Services


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:



Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	DK
	Drives	DK

	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	Yes
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Pilot 6. Other manufacturing – Accessibility solutions for washrooms/bathrooms

	
Number of employees	Total energy consumption
Between 11-50	-

Short description of the SME


Supplier of grab rails, toileting equipment and related accessories.

Technological processes


Short description about the technological processes: Assembly of grab rails, toileting equipment and related accessories. The company is currently outsourcing the manufacture of its products and assembling on site.


HVAC (Heating, Ventilation and Air Conditioning) and Lighting System

The main consumers within the SME by energy type:

Electricity		Yes/No/DK
	Technological process	Yes
	Lighting	Yes
	Compressed air	Yes
	Ventilation	Yes
	Pumps	No
	Drives	No

	Electrical heat	Yes
	Air conditioning	Yes
	Offices: PCs, printer, copier etc.	Yes

Heat		Yes/No/DK
	Technological process	No
	Room heating	Yes
	Domestic hot water preparation	Yes

Lighting System		
	No LED Technology	-
	Partially LED Technology	X
	Entirely LED Technology	-

Energy Management

Energy efficiency measures		Investment value (euro)	Energy Savings (MWh/year)	Year
Planned EE measures	Installation of energy efficient lighting	-	-	-

5. Motivation and engagement

Motivation:

In order to find out what motivates the decision makers to implement energy efficiency measures within their companies, a brainstorming session was organized.

Participants were asked the following question: As a decision-maker, what would motivate you to implement energy efficiency measures in your entity?

The main motivation was the following:

- Reduction of the energy bill;
- Contribution to fighting against climate change;
- Improve the image of the company;
- Prepare for the future increase energy prices;
- Legislative obligations;
- Improve product quality.

What would motivate SMEs to be part of the project and go beyond this?

- Energy evaluation on site by experts and trainees;
- Proposing energy efficiency measures based on a first energy evaluation;
- If there is an existing energy audit – to find the potential to update the energy audit.
- If there is no energy audit – why it is necessary to go beyond the energy evaluation done by SME mPower team and undergo an actual energy audit? The motivation should focus on: measurements, clear image on how the energy is consumed, real estimation of the potential energy and cost savings and CO2 emission reduction.
- Another great motivation is “speaking in the decision making’s language”. What can the SME do with the saved money?

Engagement:

In each country, the SMEs were engaged by the project consortium and each SME confirmed their participation by different communication channels: email or phone conversation.

6. Conclusion & future work

The deliverable presents the selected pilot sites for the first edition of the practical action done in WP5 of the SMEmPower project.

The deliverable shows the various selection criteria which was apply when the SMEs were chosen, also presents the profile of each pilot sites from the 8 countries: Cyprus, Greece, Germany, Italy, Romania, Slovenia, Spain and United Kingdom.

In the first edition of the report, 51 pilot sites were engaged and presented.

The reports will be continuously updated by each edition and forming the community of the SMEs participating in the pilot site activities.

References

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